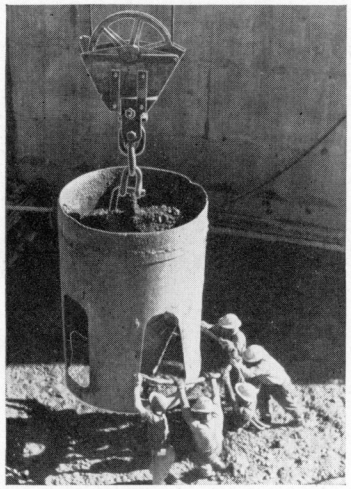
Water Piped Through Concrete for Curing Process

THE CONCRETE mixture goes into the dam sections, or squares, not less than 72 hours after the last lift was placed. Summer and winter the slabs are poured, with varying temperatures up to 130 degrees. A final temperature approximating 50 degrees is desired.

Many decades would be required for the natural cooling process. Doubtless, too, it would contract approximately eight inches in the 4300 feet of the dam. A pre-cooling and pre-shrinking plan assures that there will be no contracting and subsequent deterioration in the years to come. On each lift, one-inch tubes are laid approximately five feet apart, extending upwards from the base of the dam. When the dam finally is completed, the masonry will hold 2,000 miles of such piping.



Cold river water is circulated through the tubing to provide the necessary cooling process to assure correct ripening of the concrete mixture. Grouting between the columns of the dam makes the composite pouring a monolithic mass. Expansion in the future will put the concrete under pressure or compression. Engineers estimate that by the time the dam is completed, heat equivalent to that liberated by the burning of 30,000 tons of coal will have been exhausted by the huge tempering system of water cooling. And, so, once again the ingenuity of the scientist has conquered the forces of destruction set up by man in his striving for permanence. For, without the cooling process necessary to the curing of green concrete, which provides man one of his most versatile tools, the result of the endeavor would cause its own destruction.

River Twice Diverted

In the handling of the huge masses of concrete, as in each other of the almost countless steps in fashioning of the dam and the reclamation project as a whole, not a detail in the imagination of the engineer has been overlooked to make the Grand Coulee Dam an ever-enduring work of skill and engineering achievement.

The actual erection of the dam represents but a small portion of the work which has gone into the project. Few persons realize the many steps necessary to begin the gigantic task of tying together the walls of the coulee with a network of concrete and steel. To make the initial crossing, it was requisite to divert the waters of the river by means of coffer-dam, thereby changing the natural course of the mighty stream, enabling workmen to place the foundation of the dam. Then, a second time, the river had to be diverted to complete the crossing, and as each tier of the dam was added, the task seemed almost unending. Finally, however, the work was completed and the river was rediverted to its original channel.